

GREEN — DUWAMISH/GREEN COASTAL CUTTHROAT

STOCK DEFINITION AND ORIGIN

The Duwamish/Green coastal cutthroat stock complex is considered distinct based upon the geographic distribution of its spawning grounds. Although coastal cutthroat in the Duwamish/Green drainage are thought to be distinct, there are insufficient data to be absolutely certain. The relative proximity of nearly all river mouths in Puget Sound to each other, along with the presence of numerous smaller direct-entry tributaries in between the major systems, make it likely that some degree of straying occurs among the anadromous fish of many stock complexes as we have defined them. Spatial isolation of fluvial, adfluvial and resident forms is more likely.

The anadromous form inhabits the lower and middle mainstem and its major tributaries, including Spring Brook, Hill, Soos and Newaukum creeks. The number of anadromous cutthroat in the Green River system is not large, but a few (probably fewer than 50) are caught by anglers each year. The fluvial form is probably present throughout the system, but it, too, is thought to be composed of relatively few individuals. Adfluvial cutthroat are present in the Covington Creek drainage (Lake Sawyer and Ravensdale Lake) and in Eagle Gorge Reservoir and Eagle Lake. The resident form is present in all perennial tributaries throughout the system.

River entry timing, spawn timing and biological characteristics are unknown but are thought to be similar to those of other early-entry Puget Sound stocks, such as those in the Snohomish stock complex. That is, anadromous river entry is thought to occur from July through October. Anadromous spawn timing is likely to occur from February through May. Fluvial, adfluvial and resident spawn timing probably occur from January through mid-June.

Few hatchery-reared cutthroat have been stocked in the Green River system, and little hybridization is thought to have occurred between Tokul Creek (north Puget Sound) cutthroat hatchery stock releases which have been made in several lakes and the native stock in the drainage. Consequently Duwamish/Green coastal cutthroat are considered native and are sustained by wild production.

The Duwamish/Green complex was represented by a collection from Covington Creek in the genetic analysis. This collection was significantly different from all other South Sound coastal cutthroat collections.

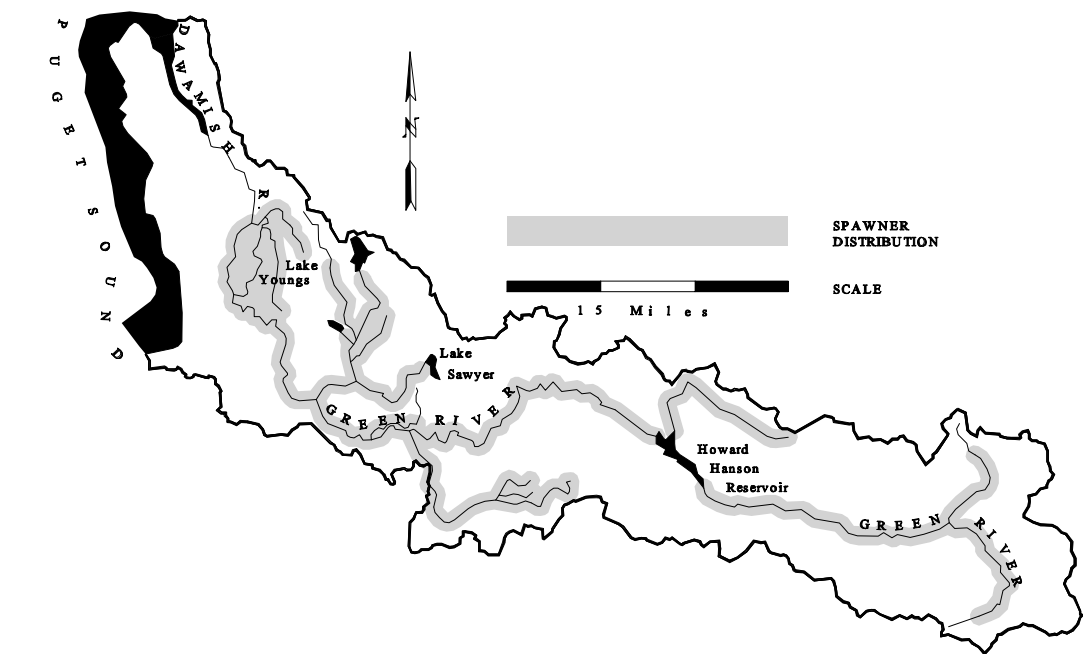
STOCK STATUS

The status of the Duwamish/Green stock complex is Unknown. The only quantitative data available are from electrofishing surveys (all ages) conducted in Newaukum Creek

STOCK DEFINITION PROFILE for Duwamish/Green Coastal Cutthroat

SPAWNER DISTRIBUTION

DISTINCT? - YES



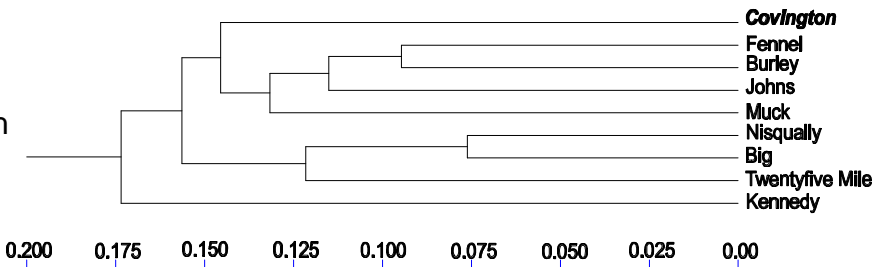
TIMING	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	DISTINCT?
Anad Riv Entry													Unknown
Anad Spawning													Unknown
Fluvial Spawning													Unknown
Adfluvial Spawning													Unknown
Resident													Unknown
Spawning													Unknown

Timings are unknown. These timings are based on those for the Snohomish Stock complex.

BIOLOGICAL CHARACTERISTICS

DISTINCT? - Unknown

GENETICS - The Covington Cr. collection made in 1995 (N=44) was significantly different from all other South Sound collections (33 allozyme-locus G-test; $P<0.001$). The Covington Cr. collection was different from the Fennel Cr. (Puyallup stock complex) at microsatellite DNA loci (6-locus G-test; $P<0.0001$).



STOCK STATUS PROFILE for Duwamish/Green Coastal Cutthroat

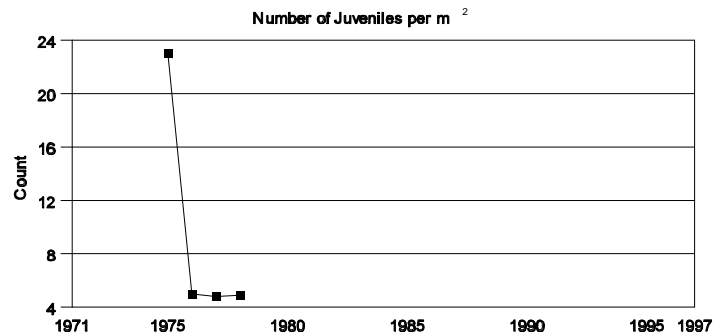
STOCK ASSESSMENT

DATA QUALITY -----> Poor

Return Years	FW PROD No/m2			
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1971	
1972	
1973	
1974	
1975	23
1976	5
1977	5
1978	5
1979	
1980	
1981	
1982	
1983	
1984	
1985	
1986	
1987	
1988	
1989	
1990	
1991	
1992	
1993	
1994	
1995	
1996	
1997	

Freshwater Production



AVERAGE RUNSIZE DISTRIBUTION

Data not available.

STOCK SUMMARY

Stock Origin

Native

Production Type

Wild

Stock Distinction

Distribution

Stock Status

Unknown

Screening Criteria

in the mid-1970s which are inadequate to assess current status. Historical records regarding Green River cutthroat populations are limited. An anonymous, undated, untitled Washington Department of Game report, probably written in 1942, indicated that adult cutthroat were caught in April and May. The same report indicated that Soos Creek, Mill Creek, and Burns Creek all supported cutthroat populations. Another anonymous report stated that cutthroat, among other species, were caught during the seine hauls at the First Avenue South Bridge in Seattle in 1940 and 1941. Twenty-seven cutthroat, 12 to 21 inches in length, were captured at that time. Moore and Clarke (1947) in their report on the Green River fisheries resource stated that cutthroat use the Green River for spawning and rearing. Run size was not discussed. DeShazo (1980) reported that anadromous cutthroat populations in the Green River are relatively small compared to those in northern Puget Sound rivers.

FACTORS AFFECTING PRODUCTION

Habitat--Anadromous cutthroat populations have undoubtedly declined from historical levels due to many factors. Although there is presently good cutthroat habitat in the Green River and tributaries, habitat reduction cannot be overlooked. The diversion of the Lake Washington system from the Green River in the early 1900s reduced Green River system cutthroat habitat dramatically and undoubtedly resulted in a significant reduction in anadromous cutthroat populations. Howard Hansen Dam and the City of Tacoma water diversion dam block many miles of excellent cutthroat habitat to anadromous fish. Water level fluctuations related to those dams reduce spawning success, and low summer flows reduce rearing area as well as hinder upstream migration. Extensive diking and channel changes that occurred in the late 1940s and early 1950s undoubtedly had a detrimental effect on cutthroat populations, as did the loss of estuarine habitat and degradation of water quality due to industrialization of Elliott Bay. Pollution-related fish kills have occurred, such as in November 1952 between Kent and Renton, and in August 1964 following the use of copper sulfate to control algae. Nonetheless the Duwamish/Green watershed does continue to provide good habitat and supports viable populations.

Harvest Management--The incidental catch of anadromous cutthroat in tribal salmon gillnet fisheries in lower Elliott Bay and the lower Duwamish/Green River is unknown. The annual sport catch of anadromous cutthroat is also unknown, but is thought to be less than 50 fish.

Sport fisheries for non-anadromous forms occur in mainstem reaches below RM 61, above RM 81 and in most perennial tributaries. No estimate of annual catch is available for these fisheries. A game fish creel survey was conducted in 1975 (Collins et al. 1975), trout anglers fished an estimated 18,268 hours and caught 4,287 trout and whitefish. An estimated 116 cutthroat were harvested.

Current regulations limit harvest in tributaries to two trout daily with a minimum-size limit of eight inches to protect rearing juveniles, outmigrating smolts and resident spawners from harvest. The mainstem limit below RM 61 has a two-trout daily limit with a minimum-size limit of 14 inches to protect first-time anadromous spawners and some repeat spawners.

Hatchery--Hatchery cutthroat are not released into anadromous waters in the Green River watershed, but stocking of hatchery-reared rainbow and cutthroat (rarely) trout occurs in many lakes. The potential for hybridization with the wild cutthroat stock in adjoining streams is limited by high fishery catch rates in the lakes and the lack of egress from most lakes. Both summer and winter hatchery steelhead smolts are released annually into the Green River, with annual release goals of 80,000 and 210,000 respectively.

Stocking of hatchery-reared coho fry in many tributaries may have adverse impacts on cutthroat production, particularly during the annual summer-fall low-flow period when competition for food becomes intense.

PUYALLUP — PUYALLUP COASTAL CUTTHROAT

STOCK DEFINITION AND ORIGIN

The Puyallup coastal cutthroat stock complex is thought to be distinct based upon the geographic distribution of its spawning grounds. It includes the White River, Carbon River and South Prairie Creek systems. Although coastal cutthroat in the Puyallup drainage are thought to be distinct, the relative proximity of nearly all river mouths in Puget Sound to each other, along with the presence of numerous smaller direct-entry tributaries in between the major systems, makes it likely that some degree of straying occurs, particularly among anadromous fish. Spatial isolation of fluvial, adfluvial and resident forms is more likely.

Coastal cutthroat occur in virtually all perennial tributaries and mainstem reaches of this system in one or more life-history forms. The anadromous form inhabits the lower and middle mainstems (Puyallup, Carbon and White rivers) and their major tributaries, including Clarks, Kapowsin, Voights, South Prairie and Boise creeks. The number of anadromous cutthroat in the Puyallup River system is not large, but a few (probably fewer than 50) are caught by anglers each year. The fluvial form is present throughout the system but in relatively small numbers within the mainstem anadromous zones. Adfluvial cutthroat may be present in Kapowsin Lake and in the Greenwater (Meeker) lakes. The resident form is probably present in all perennial tributaries of the Puyallup system.

River entry and spawn timing and other biological characteristics are unknown but are thought to be similar to those of other early-entry Puget Sound stocks, such as those for the Snohomish stock complex. River entry is probably from June through October. Anadromous spawning is probably from February through May. Fluvial, adfluvial and resident spawning is probably from January through mid-June.

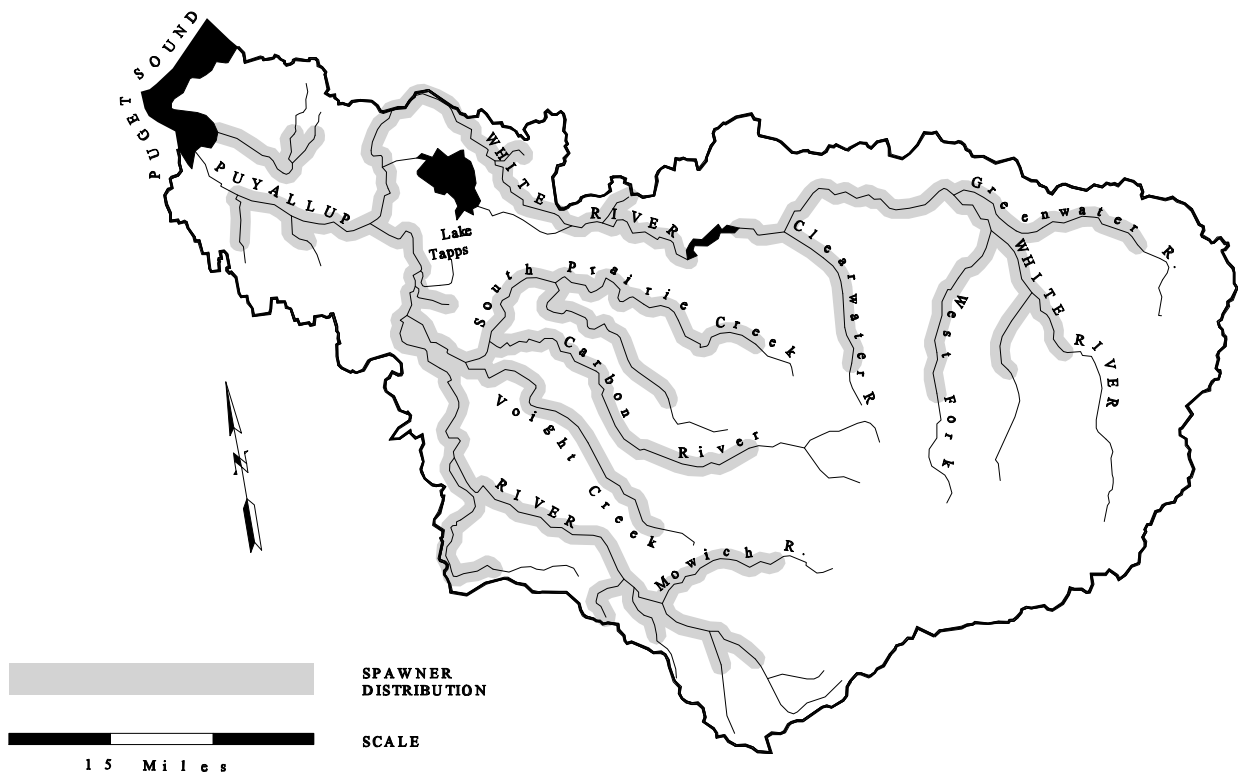
The origin of this stock complex is native. Few hatchery-reared cutthroat have been stocked in the Puyallup River system, and little hybridization is thought to have occurred between Tokul Creek (north Puget Sound) cutthroat stock hatchery releases made into several lakes and the native stock in the drainage. The Puyallup stock complex is sustained by wild production.

This watershed was represented by one collection, Fennel Creek, in the genetic analysis. Fennel Creek cutthroat were significantly different from all other South Sound cutthroat.

STOCK DEFINITION PROFILE for Puyallup Coastal Cutthroat

SPAWNER DISTRIBUTION

DISTINCT? - YES



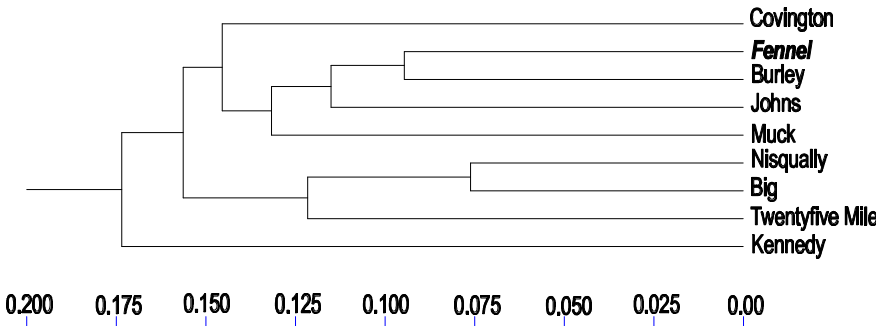
TIMING	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	DISTINCT?
Anad Riv Entry													Unknown
Anad Spawning													Unknown
Fluvial Spawning													Unknown
Adfluvial Spawning													Unknown
Resident													Unknown
Spawning													Unknown

Timings are unknown. These timings are based on those for the Snohomish stock complex.

BIOLOGICAL CHARACTERISTICS

DISTINCT? - Unknown

GENETICS - The Fennel Cr. collection made in 1995 (N=43) was significantly different from all other South Sound collections (33 allozyme-locus G-tests; $P<0.001$). It shared some allele frequencies with the Thorndyke Cr. (West Hood Canal stock complex) collection. The Fennel Cr. collection was distinct from the Covington Cr. collection (Duwamish/Green stock complex) at microsatellite DNA loci (6 locus G-tests; $P<0.0001$).



STOCK STATUS PROFILE for Puyallup Coastal Cutthroat

STOCK ASSESSMENT

DATA QUALITY -----> No Data

Return Years				
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AVERAGE RUNSIZE DISTRIBUTION

Data not available.

STOCK SUMMARY

Stock Origin

Native

Production Type

Wild

Stock Distinction

Distribution

Stock Status

Unknown

Screening Criteria

STOCK STATUS

The status of the Puyallup stock complex is Unknown. There are no quantitative data on abundance or survival with which to assess status. Cummins (1980) refers to angler catches in and around the mouth of the Puyallup River. Although sportfishing directed on cutthroat is relatively light, most anglers complain that cutthroat are becoming increasingly difficult to catch, an indication of declining population levels.

FACTORS AFFECTING PRODUCTION

Habitat--Commercial and hobby farms, logging, residential and industrial development, road building and water withdrawal have adversely affected the production of coastal cutthroat in the Puyallup River watershed. The loss of estuarine habitat in the lower Puyallup has undoubtedly led to a significant reduction in the anadromous component of the stock.

Harvest Management--The incidental catch of anadromous cutthroat in tribal gill net fisheries in the lower Puyallup River probably occurs, but the catch is likely insignificant. Sport fisheries for all life history forms are naturally limited in mainstem reaches due to turbidity from glacial melt during the normal stream fishing season. No estimate of catch is available for these fisheries, but it is thought to be less than 50 fish per year.

Current sport fishing regulations limit harvest in tributaries to two trout daily with a minimum size limit of eight inches to protect rearing juveniles, outmigrating smolts and resident spawners from harvest. In the anadromous zone, including mainstem waters the limit is two-trout daily limit with a minimum size of 14 inches for the protection of first-time spawners and some repeat spawners.

Hatchery--Stocking of hatchery-reared rainbow trout and cutthroat (rarely) occurs in many lakes in the Puyallup River watershed. The potential for hybridization with the wild cutthroat stock in adjoining streams is limited by high fishery catch rates on rainbow trout in the lakes and the lack of egress from most lakes. No anadromous cutthroat enhancement programs have been implemented on the Puyallup. Some cutthroat releases did occur in 1960, when a small number of fry were stocked (Cummins 1980).

Stocking of hatchery-reared coho fry in many tributaries may have adverse impacts on cutthroat production, particularly during the annual summer/fall low-flow period when competition for limited food and space become intense. However, coho fry releases have been reduced significantly in recent years throughout south Puget Sound. Winter steelhead are released annually into the Puyallup system, with a release goal of 200,000 smolts.

NISQUALLY — NISQUALLY COASTAL CUTTHROAT

STOCK DEFINITION AND ORIGIN

The Nisqually coastal cutthroat stock complex is thought to be distinct based upon the geographic distribution of its spawning grounds. However, the relative proximity of nearly all river mouths in Puget Sound to each other, along with the presence of numerous smaller direct-entry tributaries in between the major systems, makes it likely that some degree of between system straying occurs, particularly among anadromous fish. Spatial isolation of fluvial, adfluvial and resident forms is more likely.

Coastal cutthroat are present in virtually all perennial tributaries and mainstem reaches of this system in one or more life-history forms. The anadromous form probably inhabits the lower mainstem and its major tributaries, including Muck Creek, Murray Creek and Yelm Creek. Middle river tributaries may also contain anadromous cutthroat in lesser numbers. The fluvial form is present throughout the system. Adfluvial cutthroat are present in several lakes in the Nisqually drainage, including Chambers Lake (Muck Creek), Ohop Lake (Ohop Creek) and Alder Reservoir. The resident form is probably present in all perennial tributaries in the system.

River-entry timing, spawn timing and other biological characteristics are unknown but are thought to be similar to those of other early entry Puget Sound stocks such as those for the Snohomish stock complex. River entry is probably from July through October, typical of larger stream systems with good summer flows. Anadromous spawning is probably from February through May, while fluvial, adfluvial and resident spawning is probably from January through mid-June.

Relatively few hatchery-origin cutthroat releases have been made into the Nisqually system. Releases of Tokul Creek (north Puget Sound) cutthroat fry have been made in several beaver pond complexes, primarily in the Ohop and Mashel drainages. Beaver Creek (Columbia River) anadromous hatchery cutthroat were released into the Mashel River for 13 years (1965-1978) in an effort to provide a fishery on returning adults. The average annual release was 6,600 fish. Most were caught immediately after release in the river, and few actually migrated to Puget Sound to return as adults.

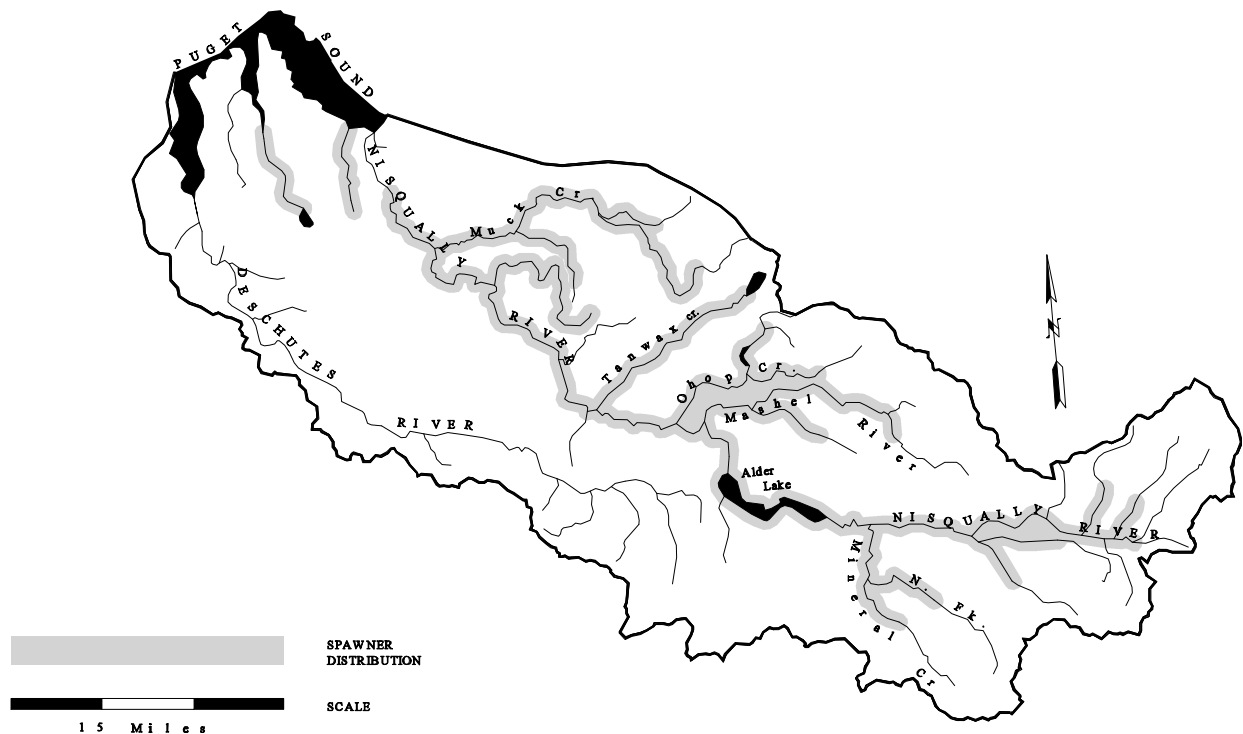
The influence of hatchery-origin cutthroat genes on the Nisqually cutthroat stock complex is thought to be insignificant, and the stock is still considered native, and sustained by wild production.

Nisqually coastal cutthroat are represented by several collections from Muck, Big and Twenty-five Mile creeks and the Nisqually River. All collections within the Nisqually watershed were significantly different from one another and from other South Sound

STOCK DEFINITION PROFILE for Nisqually Coastal Cutthroat

SPAWNER DISTRIBUTION

DISTINCT? - YES



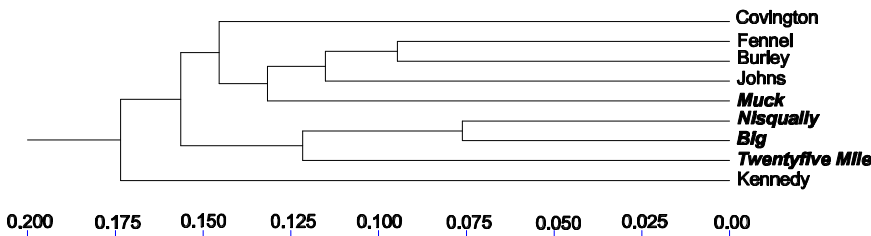
TIMING	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	DISTINCT?
Anad Riv Entry													Unknown
Anad Spawning													Unknown
Fluvial Spawning													Unknown
Adfluvial Spawning													Unknown
Resident													Unknown
Spawning													Unknown

Timings are unknown. These timings are based on those for the Snohomish stock complex.

BIOLOGICAL CHARACTERISTICS

DISTINCT? - Unknown

GENETICS - The Muck Cr. (N=50), Big Cr. (N=52), Twenty-five Mile Cr. (N=49) and Nisqually River (Rkm 106) collections, made in 1996, were significantly different from one another and from other South Sound collections (33 allozyme-locus G-tests; $P<0.001$).



STOCK STATUS PROFILE for Nisqually Coastal Cutthroat

STOCK ASSESSMENT

DATA QUALITY -----> No Data

Return Years				
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AVERAGE RUNSIZE DISTRIBUTION

Data not available.

STOCK SUMMARY

Stock Origin

Native

Production Type

Wild

Stock Distinction

Distribution

Stock Status

Unknown

Screening Criteria

collections. One collection, Muck Creek, appears to share genetic similarities with collections from Northwest Hood Canal.

STOCK STATUS

The status of the Nisqually stock complex is Unknown. There are no quantitative data on abundance and survival with which to assess status. Cummins (1980) noted that Muck Creek once had a reputation for good cutthroat fishing, probably on juvenile anadromous fish, but that cutthroat populations declined, possibly due to overharvest.

FACTORS AFFECTING PRODUCTION

Habitat--Farming, logging, road building and water withdrawal have adversely affected the production of cutthroat in the Nisqually system. The estuary is one of only a few of its size left relatively unspoiled by development in Puget Sound, and it provides an excellent environment for anadromous cutthroat. The Alder and LaGrande dams block access to many miles of anadromous spawning and rearing habitat, and imposed perhaps the most significant environmental alteration affecting salmonid species in the Nisqually basin. Other potential problems involve incidental spillage of chemicals such as the 1977 railroad accident which resulted in 600 tons of copper ore going into the river.

Harvest Management--The incidental catch of anadromous coastal cutthroat in tribal gillnet fisheries in the Nisqually River is unknown but is thought to be low. The annual sport catch of anadromous cutthroat is also unknown but is probably less than 100 fish. The glacial character of the mainstem limits sport fishing effort during the likely period of river entry from June through October which coincides with the normal fishing season.

Current sport fishing regulations limit the harvest of resident fish in tributaries and upper mainstem (above RM 41) to a two-fish daily limit with a minimum size limit of eight inches to protect rearing juveniles, outmigrating smolts and resident spawners from harvest. Chambers Lake (Muck Creek) is a catch-and-release only area for all trout, with selective fishery regulations on gear. Regulations for the lower mainstem (below RM 41) limit the daily catch to two fish with a minimum size limit of 14 inches to protect first-time anadromous spawners and some repeat spawners.

Hatchery--Cutthroat trout are not released into the Nisqually system. Stocking of hatchery-reared rainbow trout occurs in many lakes in the Nisqually River watershed. The potential for hybridization with the wild cutthroat in adjoining streams is limited by high fishery catch rates on rainbow in lakes and the lack of egress from most lakes.

Stocking of hatchery-reared coho fry in many tributaries may have adverse impacts on cutthroat production, particularly during the annual summer-fall low-flow period when competition for limited food and space becomes intense. However, coho fry releases

throughout South Puget Sound tributaries are being reduced. Hatchery steelhead are not released into the Nisqually system.

WESTERN SOUTH SOUND COASTAL CUTTHROAT

STOCK DEFINITION AND ORIGIN

The Western South Sound coastal cutthroat stock complex is thought to be distinct from other South Sound stocks based upon the later timing of freshwater entry exhibited by its anadromous component and its distribution in the small to medium-sized independent streams of south and western Puget Sound. For characteristics such as spawning time, smolt age, age at first spawning and morphology, the differences among stocks are not well-defined.

The anadromous life history form is likely to be found in most of these systems, but presence and distribution in freshwater may be quite seasonal because of summer and fall low flows. It is expected that these fish are late-entry. The fluvial form probably inhabits all of the medium-sized streams, and the adfluvial form may be present in as many as 12 lakes within the range of this stock complex. The resident form of this stock complex is present in virtually all perennial independent streams in western South Puget Sound.

Hatchery-origin cutthroat were released in the Deschutes River and McAllister Creek for several years. Interbreeding between hatchery and wild cutthroat is thought to have been unlikely because of high catch rates on hatchery fish and poor survival of hatchery-origin fish in the wild. Consequently, Western South Sound coastal cutthroat are considered native. The stock is maintained by wild production.

Genetic collections from this region include Kennedy, John's and Burley creeks which are significantly different from one another and from other South Sound collections.

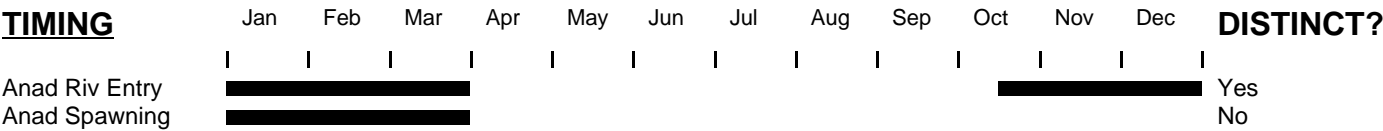
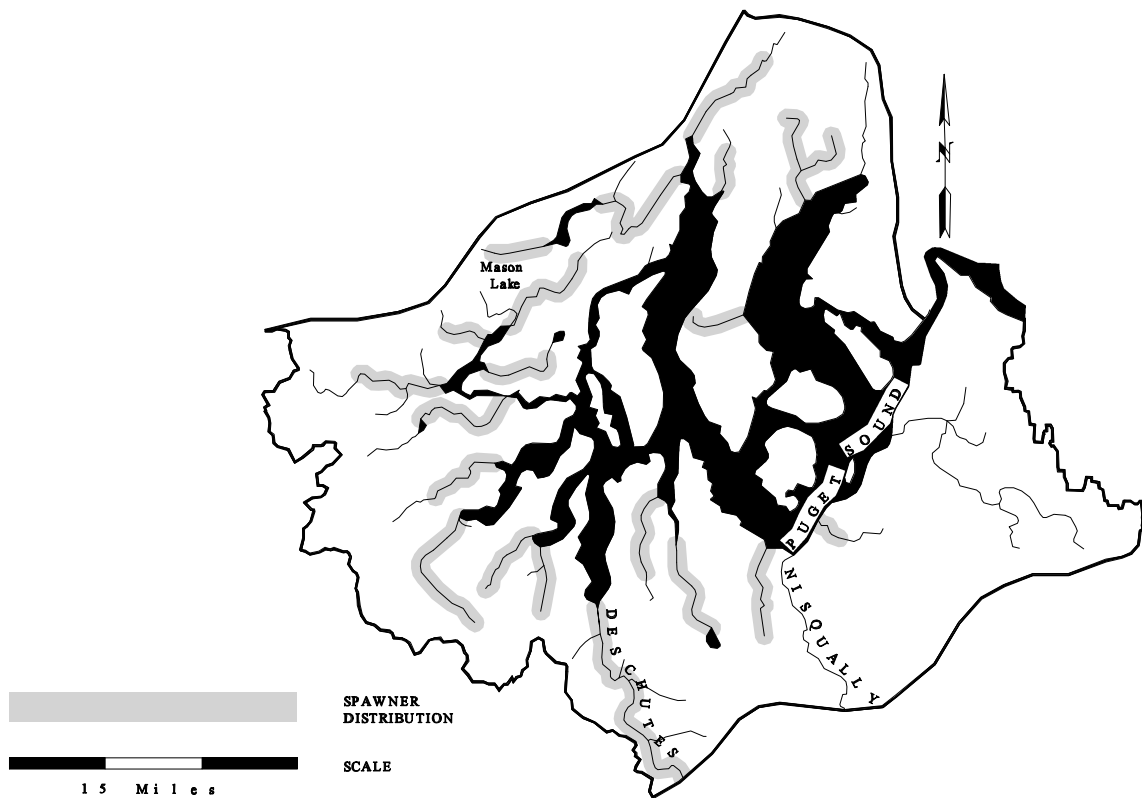
STOCK STATUS

The status of the Western South Sound stock complex is Unknown. We have no current quantitative data on abundance or survival with which to assess status. Smolt counts from Washington Department of Fisheries traps on Perkins Creek (Eld Inlet), Mill Creek (Hammersley Inlet) and Wildcat Creek (Dyes Inlet) are shown in columns 1, 2 and 3 of the stock assessment section of the Stock Status Profile. These data were collected in the 1980s and are not useful in determining current status. Hunter (1980) rated anadromous cutthroat status in many of the tributaries in this region, based on habitat quality. Those Kitsap Peninsula tributaries that were given a good rating included Coulter, Rocky, Minter, Burley, Purdy, Olalla, Curley, Blackjack, Gorst, Chico, Ekur and Barker creeks. Those tributaries with a fair rating included Crescent Valley, Anderson, Parish and Milter creeks. Beaver and Mosher creeks were rated as possibly low. Within more southerly waters the following systems were ranked as good:

STOCK DEFINITION PROFILE for Western South Sound Coastal Cutthroat

SPAWNER DISTRIBUTION

DISTINCT? - YES

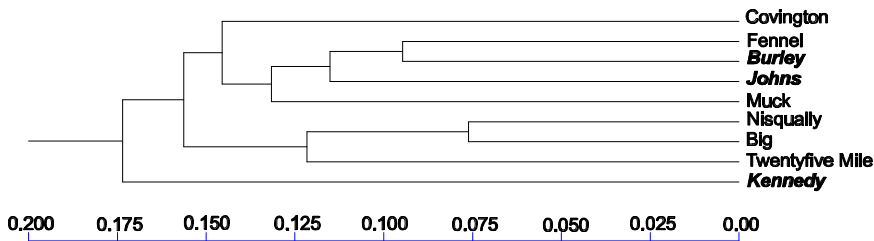


Timings are unknown. These timings are based on those for the North Puget Sound Tribs stock complex.

BIOLOGICAL CHARACTERISTICS

DISTINCT? - Unknown

GENETICS - The Kennedy Cr. (N=51), Johns Cr. (N=47) and Burley Cr. (N=26) collections made in 1995 were significantly different from one another and from other South Sound collections (33 allozyme-locus G-tests; $P<0.001$).

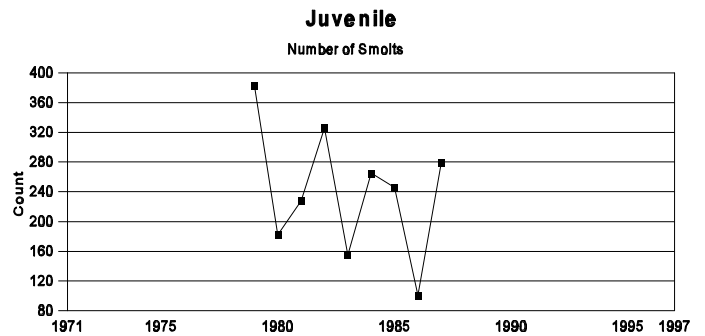
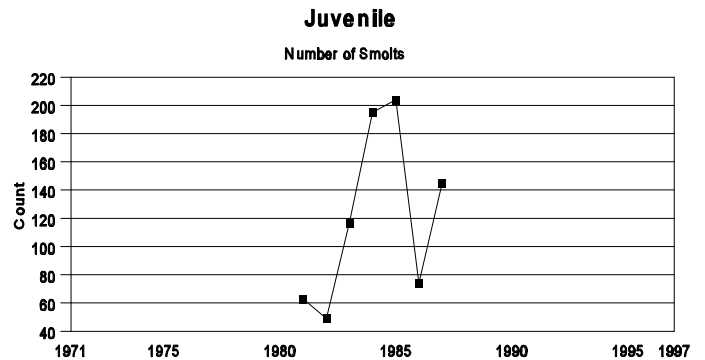


STOCK STATUS PROFILE for Western South Sound Coastal Cutthroat

STOCK ASSESSMENT

DATA QUALITY -----> Fair

Return Years	JUVENILE Smolts	JUVENILE Smolts	JUVENILE Smolts	
1971				
1972				
1973				
1974				
1975				
1976				
1977				
1978				
1979		383	305	
1980		182	737	
1981	63	228	670	
1982	49	326	543	
1983	117	155	723	
1984	195	265	823	
1985	204	246	951	
1986	74	101	392	
1987	145	279	264	
1988				
1989				
1990				
1991				
1992				
1993				
1994				
1995				
1996				
1997				



Col. 1= Perkins Creek, Col. 2= Mill Creek, Col. 3= Wildcat Creek

AVERAGE RUNSIZE DISTRIBUTION

Data not available.

STOCK SUMMARY

Stock Origin

Native

Production Type

Wild

Stock Distinction

Distribution, Timing

Stock Status

Unknown

Screening Criteria

Sherwood, Campbell, Millaney, Deer, Cranberry, Kennedy, McLane, Deschutes River, and Woodland creeks. Those identified as fair included Goldsborough, Skookum, and Schneider creeks. Only Perry Creek received a low rating, while Mill Creek was rated “very good.”

FACTORS AFFECTING PRODUCTION

Habitat--The primary sources of habitat loss in this part of the Puget Sound basin are residential development and road building. These activities result in loss of riparian vegetation, increased sediment loads, high run-off rates, and blockages to migration. Examples of areas where these impacts have occurred include Chambers, Woodland, Goldsborough and Burley creeks. For the most part, however, the many small streams in the range of this stock still have adequate habitat to support viable populations of cutthroat.

Harvest Management--Within this region there is a mix of regulations, both in opening times and minimum size limits. Some tributaries are closed year-round including: Campbell, Canyon, Cranberry, Johns, Uncle John, and Shelton creeks. Other streams, especially the smaller ones, are open from June 1 through October 31 with an eight-inch minimum size limit. Minter and Sherwood creeks are open from June 1 through October 31 with a 14-inch size limit. Still others, such as Kennedy, Goldsborough, and Mill creeks have extended seasons, closing March 1, with a 14-inch size limit. The Deschutes River is open from June 1 through March 31, also with a 14-inch minimum size limit.

Since the anadromous adults of these stock complexes do not re-enter streams until the season is normally closed, most adults are protected. Those waters with an eight-inch minimum size limit protect most cutthroat through the time of smolting and adult resident cutthroat as well. In all marine waters, wild cutthroat (those with adipose fins) must be released.

Hatchery--Beaver Creek (Elochoman River) coastal cutthroat hatchery smolts were stocked for 13 years in the Deschutes River and for nine years in McAllister Creek, but there have been no hatchery releases into other streams in this part of Puget Sound. Impacts to wild cutthroat from past hatchery releases of rainbow and cutthroat into South Puget Sound lakes and streams are believed to have been minimal. High catch rates by anglers on released hatchery fish, along with poor survival rates of hatchery fish in the wild, have made hybridization and competition with wild fish unlikely.

Stocking of hatchery-reared coho fry in many streams in this area may have adverse impacts on cutthroat production, particularly during the annual summer-fall low flow period when competition for limited food and space becomes intense. Hatchery coho fry have been stocked in most of these systems in past years. However, WDFW has recently made changes in coho programs that have significantly reduced off-station fry plants, especially in South Puget Sound. Deschutes River is the only system that receives releases of hatchery steelhead smolts, with an annual release goal of 25,000.